

24 July 2017

**EDUCATION PROJECT COMPLETE:
Lichens of the Black Hills, an introduction to Lichenology
June 12, 13, 14, 2017**

Mary Zimmerman
22435 Jim Creek Lane
Deadwood, SD 57732
Email: mwipf@ymail.com

**The workshop “Lichens of the Black Hills, an Introduction to Lichenology”
was held at Green Ink Gallery and Studios, Nemo, SD on June 12, 13, 14, 2017.**

I was able to procure the services of Dr. Peter R. Nelson, PhD of Fort Kent, Maine. He led the training with world-class expertise. Dr. Nelson handled segments of anatomy, morphology, growth forms, biology and ecology, as well as descriptions and analysis of over-arching groups of lichens in the Black Hills (genera). Additionally, he brought a tremendous wealth of knowledge and personal experience wrought by numerous projects he has conducted in Chile, Alaska and elsewhere, and he inserted this in his lectures and during field segments in a way that gave much meaning to what the participants were learning.

In support of the major role Dr. Nelson played, I did multiple presentations covering target species within the covered genera as well as one presentation targeting rare Black Hills lichen species. Also, Steven Rolfmeier did a presentation specific to lichen crusts.

The perfect weather allowed us to go inside and outside according to the curriculum without a need to accommodate rain or extreme temperatures. Participants were eager to take their lunches along for the field segments in order to extend the outside learning time a bit longer. The setting was perfect because of easy access to a variety of habitats on private and U.S. Forest Service lands that support a plethora of lichen species. The interplay of classroom lectures and microscope/keying exercises with outdoor/real-world experiences was extremely important to the successful and memorable learning that took place.

Attendance:

Including lichenologist / head instructor Dr. Peter Nelson and myself, there were 17 people involved. The course attracted science teachers and professors, botanists, wildlife biologists, a mycologist, an artist, a farmer, and a college student. Among participants, there was representation from Chadron State, NE, SDSM&T (Professor Emeritus), U.S. Forest Service, National Parks Service, University of Wyoming, SDGF&P, and several SD schools including Sioux Falls and Rapid City public schools, and Black Hills Academy.

It had become evident during planning of the workshop that some were interested in a smaller amount of information than the entire workshop would yield, so 4 of the participants attended only the morning session of the first day. They were able to take in the introductory lectures and field segments without getting into the keying and dissecting work with microscopes with the main group during the rest of the training days. 3 others had expressed interest in the first morning, but did not attend.

Budget:

The budget was more or less adhered to with the exception of using more for travel because of the cost of Dr. Nelson's flight from Maine which was balanced with less towards personnel.

Acknowledgements:

Funding for this project was provided by the South Dakota Game Fish & Parks Wildlife Diversity Small Grants Program. Thank you SDGF&P for showing confidence in people like myself and for making innovative grass-roots projects possible!

Additional thanks are due to Green Ink Gallery and Studios, Nemo, SD for providing the excellent classroom space and the great outdoor access as well. Artist Mark Zimmerman graciously took a few days off from painting to make way for the lichen training. The Nemo Community Hall was so kind to loan us tables and chairs, and really awesome microscopes were provided by Chadron State College, Chadron NE.

A picture is worth a thousand words:

Beautiful Black Hills surroundings for a summer workshop setting



New lichenologists checking out the nitrophilic barnyard species



Alex perusing the corral boards for species diversity



Classroom space at Green Ink Gallery, Nemo, SD.

Wind Cave team rocking their way through the keys.



Zach and Jeff work through a specimen together



Steve and Bethany pondering a foliose lichen with Dr. Nelson



Bethany, Jeff, Rylan, and Shelly check out some free-living nostoc (a blue-green algae and sometimes lichen component) on soil



Jeff at work right through lunch break



Rylan taking a closer look



Dorothy checking the lichen crusts on a rock



Perry, Shelly, Jeff, Evan, Dorothy, Jeremy, Rylan, Bethany, Steve, Mark, Alex, Gay and Timm listen to Dr. Peter Nelson as he explains the roles lichens play ecosystems

Participant Feedback:

Lichen training participants were asked to provide feedback at the end of the workshop. Here are the results:

Evaluation form -- please provide feedback, thank you!

On a scale from 1 (poor) - 10 (excellent), rate the instructors': Overall:	Peter 9.85	Mary 9.72	Steve 9.35
Command of the subject	10	9.62	9
Clarity of explanations	9.6	9.50	9.28
Sensitivity to the response of the class	9.9	9.75	9.62
Apparent enjoyment of teaching	10	10	9.50

What did you like most?

- Outside
- Microscope use
- Correlating in-class knowledge to going into the field seeing live specimens
- Field trips
- Interaction with presenters & participants
- Outstanding presentation, lecture & fieldwork
- Looking at the outdoor lichen diversity!
- The help with interpreting the keys
- Working through the key was very useful as this seems to be the skill I'll use the most
- Gathering lichen outside, then coming back and IDing was my favorite part
- Hands-on learning
- Field time
- The enthusiasm for the subject matter
- The speed it was taught
- Rudimentary differentiation of broad lichen classes (groups) at first glance

What did you like least?

- No refrigerator
- Arrangements to collect & ID stuff – but that's just me
- The speed it was taught
- Speed of terminology. Go over terms – glossary before begin lectures. Or – hand out ahead of time.

What suggestions can you make to improve the course or the way it is taught?

- In the field, it would be nice to have a physical picture guide for comparisons/ identification
- Some more organization when teaching all of the morphological terms
- Maybe a 2 day intro class followed by the 3 day advanced class
- Slow down on presentations. Allow info to sink in

Was the material:

Too thin - 0 / too deep - 11% ("slightly") / **just right - 89%**

Too little - 10% / too much - 20% ("but it will sink in!") / **just right - 70%**

General Comments:

- Challenging for someone at my low level, but well presented
- Came in without any knowledge or real appreciation of lichens. Leaving with a real interest and another way to enhance my teaching and romps in the woods.
- Loved it. Hope to be able to attend again.
- Could use reticles for microscopes for measuring spores, etc.
- This is a nice venue for this – let's do a crustose (lichens) workshop.
- Support beyond workshop encouraged and accepted from presenters – generosity of expertise exceptional development of scientific community.
- Very helpful and enjoyable. Thank you!
- Too much species specific focus for a beginner like myself. More genus focus would allow me to remember more of the genera.
- At first I thought that the material was too in depth and too much information in one day. By the third day, I did not have that feeling and was thankful for the speed and depth with which the class was taught.
- Thank you! It was fascinating and a walk outside will never be the same.